

WHAT IS CLAIMED IS:

1. An optical disc drive for reading and/or writing data from/on an optical disc having a data storage layer, the optical disc drive comprising:

a light source for emitting light;

a lens for converging the light;

a photodetector for detecting the light reflected from the optical disc to output a read signal;

at least one blocker for selectively outputting one of the read signal and a predetermined reference signal;

a servo signal generator for generating a servo signal in response to the output signal of the blocker;

an offset detector for detecting a first type of offsets that have been produced due to one of electric circuits of the servo signal generator, the offset detector detects output values of the servo signal generator as values of the first type of the offsets while the reference signal is output;

a memory for storing the first type of offsets detected;

a calculator for outputting one of the first type of actual offset and a second type of offset, as a correction value, the calculator deriving the second type of offset based on a variation rate of the first type of offsets stored; and

a corrector for correcting the servo signal in accordance with the correction value.

2. The optical disc drive according to claim 1, further comprising:

a sensor for sensing temperature of the servo signal generator; and

a decision section for determining, by the temperature sensed, whether or not the correction value should be updated, to generate an update signal, and for determining, by the amount of time that has passed since the correction value was updated last time, whether or not the first type of offset should be detected to generate a detection signal,

wherein if the detection signal instructs that the first type of offset should be detected and if the update signal instructs that the correction value should be updated, then the offset detector detects the first type of actual offset and the corrector outputs the first type of the actual offset as the correction value.

3. The optical disc drive according to claim 1, further comprising:

a sensor for sensing temperature of the servo signal generator; and

a decision section for determining, by the temperature sensed, whether or not the correction value should be updated to generate an update signal, and for determining, by the

amount of time that has passed since the correction value was updated last time, whether or not the first type of offset should be detected to generate a detection signal,

wherein if the detection signal instructs that the first type of offset should not be detected and if the update signal instructs that the correction value should be updated, then the calculator derives the second type of offset.

4. The optical disc drive according to claim 1, further comprising:

a sensor for sensing temperature of the servo signal generator; and

a decision section for determining, by the temperature sensed, whether or not the correction value should be updated to generate an update signal, and for determining, by the amount of time that has passed since the correction value was updated last time, whether or not the first type of offset should be detected to generate a detection signal,

wherein if the detection signal instructs that the first type of offset should not be detected and if the update signal instructs that the correction value should not be updated, then the corrector corrects the servo signal in accordance with an actual correction value.

5. The optical disc drive according to claim 2, further

comprising a detection controller for generating a blocking signal instructing whether or not the read signal should be blocked,

wherein if the detection signal instructs that the first type of offset should be detected, then the detection controller generates the blocking signal instructing that the read signal should be blocked, and

wherein in response to the blocking signal, the blocker blocks the read signal and passes the predetermined reference signal.

6. The optical disc drive according to claim 2, further comprising a detection controller for generating a blocking signal indicating whether or not the read signal should be blocked,

wherein if the detection signal instructs that the first type of offset should be detected, then the detection controller generates the blocking signal instructing that the read signal should be blocked, and

wherein in response to the blocking signal, the light source stops emitting the light.

7. The optical disc drive according to claim 2, further comprising:

a lens driver for changing the position of the lens at

least one of directions along the radius of the optical disc and perpendicular to the optical disc in accordance with a control signal; and

a control signal generator for generating the control signal in response to the detection signal,

wherein if the detection signal instructs that the first type of offset should be detected, then the control signal generator holds the value of the control signal.

8. The optical disc drive according to claim 1, further comprising an amplifier for amplifying the read signal to output the amplified signal,

wherein the at least one blocker includes a first blocker and a second blocker, the first blocker passing one of the read signal and a first predetermined reference signal to the amplifier in response to a first blocking signal, the second blocker passing one of the output signal of the amplifier and a second predetermined reference signal to the servo signal generator, and

wherein the offset detector further detects the output values of the amplifier, to which the first reference signal is supplied from the first blocker, as a third type of offsets of the amplifier that have been produced due to one of electric circuits of the amplifier, and

wherein the memory further stores the third type of

offsets detected, and

wherein the calculator outputs one of the third type of actual offset and a fourth type of offset as the correction value, the calculator deriving the fourth type of the offset based on a variation rate of the third type of offsets stored and then outputting the fourth type of the offset.

9. The optical disc drive according to claim 8, further comprising:

a first sensor for sensing the temperature of the amplifier;

a second sensor for sensing the temperature of the servo signal generator; and

a decision section for determining, by the temperatures of the amplifier and the servo signal generator sensed, whether or not the correction value should be updated to generate an update signal, and for determining, by the amount of time that has passed since the correction value was updated last time, whether or not the first and third types of offsets need to be detected to generate a detection signal,

wherein if the detection signal instructs that the third type of offset should be detected and if the update signal instructs that the correction value should be updated, then the offset detector detects the third type of the actual offset and the corrector outputs the third type of the actual

offset as the correction value.

10. The optical disc drive according to claim 1, wherein no matter whether the optical disc drive is reading or writing data from/onto the optical disc,

the offset detector detects the first type of offsets, the memory stores the first type of offsets thereon, and the calculator outputs the correction value.

11. The optical disc drive according to claim 1, wherein the servo signal is at least one of a tracking error signal and a focus error signal.

12. The optical disc drive according to claim 2, wherein if a variation in the temperature sensed has exceeded a predetermined threshold value, the decision section generates the update signal instructing that the correction value should be updated.

13. The optical disc drive according to claim 2, further comprising a time keeper for keeping the amount of time passed,

wherein if the amount of time passed has exceeded a predetermined threshold value, the decision section generates the update signal instructing that the correction value should

be updated.

14. The optical disc drive according to claim 1, further comprising a buffer for storing the data thereon,

wherein if the update signal instructs that the correction value should be updated, the decision section determines, by the amount of information stored in the buffer, whether or not the first type of offset should be detected to generate the detection signal.

15. The optical disc drive according to claim 2, further comprising a temperature memory for storing the values of the temperatures sensed,

wherein the calculator derives the second type of offset based on the temperature values stored on the temperature memory and on the first type of offsets.

16. The optical disc drive according to claim 15, wherein the temperature memory stores each of the temperature values thereon when an associated one of the first type of the offsets is stored on the memory, and

wherein the calculator finds two of the temperature values, which are closest to, and next closest to, an actual one of the temperature values, from the temperature values on the temperature memory, and derives the second type of offset

based on the first type of offsets that were stored on the memory when the two temperature values found were stored on the temperature memory.

17. A method for controlling an optical disc drive that is used to read and/or write data from/on an optical disc having a data storage layer, the method comprising steps of:

emitting light;

converging the light;

detecting the light reflected from the optical disc to output a read signal;

selectively passing, as an output signal, one of the read signal and a predetermined reference signal;

generating a servo signal in response to the output signal;

detecting the servo signal that has been generated in response to the reference signal as a first type of offset that has been superposed on the servo signal;

storing the first type of offsets detected;

outputting one of the first type of actual offset and a second type of offset as a correction value with the second type of the offset derived based on a variation rate of the first type of the offset stored; and

correcting the servo signal in accordance with the correction value.

18. An optical disc drive for reading and/or writing data from/on an optical disc having a data storage layer, the optical disc drive comprising:

- an optical head including a light source for emitting light, a lens for converging the light and a photodetector for detecting a light to output a read signal;

- a lens driver for changing the position of the lens substantially perpendicularly to the data storage layer in accordance with a control signal;

- a control signal generator for generating the control signal that includes an instruction to move the lens to a position that no light reflected from the optical disc reaches;

- a TE signal generator for generating a first tracking error signal based on the read signal;

- an offset detector for detecting an electrical offset that has been produced in the TE signal generator;

- an offset corrector for removing the electrical offset from the first tracking error signal to generate a second tracking error signal; and

- a stray light regulator for detecting a stray light signal, representing a portion of the light that has been diffused inside of the optical head, in response to the second tracking error signal and removing the stray light signal from

the read signal.

19. An optical disc drive for reading and/or writing data from/on an optical disc having a data storage layer, the optical disc drive comprising:

- an optical head including a light source for emitting light, a lens for converging the light on the optical disc and a photodetector for detecting the light reflected from the optical disc to output a first read signal;

- a level controller for generating a second read signal with a level falling within a predetermined range based on the first read signal;

- a TE signal generator for generating a first tracking error signal based on the second read signal, the TE signal generator having a dynamic range defined by the predetermined range;

- an offset detector for detecting an electrical offset that has been produced in the TE signal generator;

- an offset corrector for removing the electrical offset from the first tracking error signal to generate a second tracking error signal;

- a control signal generator for generating a control signal based on the second tracking error signal; and

- a lens driver for moving the lens across the track in accordance with the control signal such that the light is

converged right on the track.

20. A method for controlling an optical disc drive that is used to read and/or write data from/on an optical disc having a data storage layer, the method comprising steps of:

emitting light;

converging the light on the optical disc;

detecting the light reflected from the optical disc to output a first read signal;

generating a second read signal with a level falling within a predetermined range based on the first read signal;

generating a first tracking error signal based on the second read signal;

detecting an electrical offset that was produced when the first tracking error signal was generated and that is superposed on the first tracking error signal;

removing the electrical offset from the first tracking error signal to generate a second tracking error signal;

generating a control signal based on the second tracking error signal; and

getting the light converged right on the track in accordance with the control signal.

21. The method according to claim 20, comprising steps of:

performing the step of detecting the electrical offset a

number of times at regular intervals;

storing respective values of the electrical offsets detected; and

estimating, by at least two of the electrical offsets, a value of the electrical offset to be superposed on the first tracking error signal after the electrical offsets have been detected,

wherein the step of generating the second tracking error signal includes the step of generating the second tracking error signal based on the estimated value of the electrical offset.

22. An optical disc drive for reading and/or writing data from/on an optical disc having a data storage layer, the optical disc drive comprising:

an optical head including a light source for emitting light, a lens for converging the light and a photodetector for detecting a light to output a read signal;

a lens driver for changing the position of the lens substantially perpendicularly to the data storage layer in accordance with a control signal;

a control signal generator for generating the control signal that includes an instruction to move the lens to a position that no light reflected from the optical disc reaches;

an FE signal generator for generating a first focus error signal based on the read signal;

an offset detector for detecting an electrical offset that has been produced in the FE signal generator;

an offset corrector for removing the electrical offset from the first focus error signal to generate a second focus error signal; and

a stray light regulator for detecting a stray light signal, representing a portion of the light that has been diffused inside of the optical head, in response to the second focus error signal and removing the stray light signal from the read signal.

23. An optical disc drive for reading and/or writing data from/on an optical disc having a data storage layer, the optical disc drive comprising:

an optical head including a light source for emitting light, a lens for converging the light on the optical disc and a photodetector for detecting the light reflected from the optical disc to output a first read signal;

a level controller for generating a second read signal with a level falling within a predetermined range based on the first read signal;

an FE signal generator for generating a first focus error signal, representing a positional relationship between a

focal point of the light as defined perpendicularly to the optical disc and the data storage layer, based on the second read signal, the FE signal generator having a dynamic range defined by the predetermined range;

an offset detector for detecting an electrical offset that has been produced in the FE signal generator;

an offset corrector for removing the electrical offset from the first focus error signal to generate a second focus error signal;

a control signal generator for generating a control signal based on the second focus error signal; and

a lens driver for moving the lens perpendicularly to the optical disc in accordance with the control signal such that the light is focused right on the data storage layer.

24. A method for controlling an optical disc drive that is used to read and/or write data from/on an optical disc having a data storage layer, the method comprising steps of:

emitting light;

converging the light on the optical disc;

detecting the light reflected from the optical disc to output a first read signal;

generating a second read signal with a level falling within a predetermined range based on the level of the first read signal;

generating a first focus error signal based on the second read signal;

detecting an electrical offset that was produced when the first focus error signal was generated and that is superposed on the first focus error signal;

removing the electrical offset from the first focus error signal to generate a second focus error signal;

generating a control signal based on the second focus error signal; and

getting the light focused right on the data storage layer in accordance with the control signal.

25. The method according to claim 24, comprising the steps of:

performing the step of detecting the electrical offset a number of times at regular intervals;

storing respective values of the electrical offsets detected; and

estimating, by at least two of the electrical offsets, a value of the electrical offset to be superposed on the first focus error signal after the electrical offsets have been detected,

wherein the step of generating the second focus error signal includes the step of generating the second focus error signal based on the estimated value of the electrical offset.

26. An optical disc drive for reading and/or writing data from/on an optical disc having a data storage layer, the optical disc drive comprising:

an optical head including a light source for emitting light, a lens for converging the light and a photodetector for detecting a light to output a first read signal;

a lens driver for changing the position of the lens substantially perpendicularly to the data storage layer in accordance with a control signal;

a control signal generator for generating the control signal that includes a first control signal and a second control signal, the first control signal having an instruction to move the lens to a position that no light reflected from the optical disc reaches, the second control signal having an instruction to move the lens to a position that the light reflected from the optical disc reaches;

a stray light regulator for detecting a stray light signal, representing a portion of the light that has been diffused inside of the optical head, in response to the first read signal while the lens driver is operating in accordance with the first control signal and for holding a correction value associated with the level of the stray light signal detected;

a level controller for generating a second read signal

with a level falling within a predetermined range based on the level of the first read signal while the lens driver is operating in accordance with the second control signal;

a servo signal generator for generating a first servo signal, representing a positional relationship between a focal point of the light and the optical disc, based on the second read signal, the servo signal generator having a dynamic range defined by the predetermined range;

an offset detector for detecting an electrical offset that has been produced in the servo signal generator; and

an offset corrector for removing the electrical offset from the first servo signal to generate a second servo signal,

wherein the stray light regulator corrects the second servo signal based on the correction value.